ENTOMOLOGICAL NEWS

FEBRUARY 1949

Vol. LX **No. 2**

CONTENTS

Alexander, G.—Frederick B Isley (1873–1947) 29

Wallace—European chalcid in North America 30

Hull—New species of Volucella 31

Alexander, C. P.—Western crane-flies. Part XI 39

Obituary—A. D. Imms 45

Current Entomological Literature 46

Reviews

Catalogue of the Odonata of Canada, etc. 53

Coleoptera east of the great plains 54

PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY
THE AMERICAN ENTOMOLOGICAL SOCIETY
PRINCE AND LEMON STS., LANCASTER, PA.
AND
THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $4.00 domestic; $4.30 foreign; $4.15 Canada.
Acceptance for mailing at the special rate of postage provided for in the Act of February 28, 1925, embodied in paragraph 4, Sec. 538, P. L. & R., authorized April 19, 1943.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. R. G. SCHMIEDER, Editor. Editorial Staff: E. J. F. MARX, M. E. PHILLIPS, J. A. G. REHN, and A. G. RICHARDS.

Subscription price, per yearly volume of 10 numbers: Domestic, $4.00; Foreign, $4.30; Canada, $4.15—U. S. Currency.

SUBSCRIPTIONS, ADVERTISEMENTS: All communications and remittances to be addressed to **ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia 3, Pa.**

ADVERTISING RATES: Full width of page. Payments in advance.

	1 Inch	2 Inches	3 Inches	6 Inches
One Issue	$ 2.50	$ 4.50	$ 6.50	$10.00
Five Issues	9.00	17.00	24.00	42.00
Ten Issues	16.00	30.00	42.00	72.00

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

The receipt of all papers will be acknowledged and, if accepted, they will be published as soon as possible. If not accepted, authors will be so advised and postage requested for return of manuscripts. Articles longer than six printed pages may be published in two or more installments, unless the author is willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

ILLUSTRATIONS will be published at the author's expense as follows: Cost of engraving plus cost of printing text-figures exceeding 2 inches in height; or plus cost of printing insert plates. The size of text-figures or plates when printed must not exceed 4 x 6 inches.

All blocks will be sent to authors after publication. It is not advisable to print half-tones as text-figures.

TABLES: Authors will be charged the setting of all tables exceeding 2 inches in height.

SEPARATA: Twenty-five extras of an author's contribution will be given free. They will be "run of form," without removal of extraneous matter, folded but not bound, uncut and without cover.

Authors wishing more than the 25 separates must so advise the Editor or the printer. See bottom of this page. The Editor requests that authors state the number of separates desired in a letter accompanying their manuscript.

SEPARATES of articles without covers, without extraneous matter, will be furnished by the printer at the following prices: 1–4 pages, 25 copies, $3.13; 50 copies, $313; 100 copies, $3.75. 5–8 pages, 25 copies, $5.00; 50 copies, $5.00; 100 copies, $5.94. 9–12 pages, 25 copies, $7.81; 50 copies, $7.81; 100 copies, $9.06. Covers: first 50, $3.44; additionals at .025 cents each. Plates, printed on one side: first 50, $2.50; additional at 0.188 cents each. Transportation charges will be extra. THE LANCASTER PRESS, INC., Lancaster, Pa.

ENTOMOLOGICAL NEWS

VOL. LX FEBRUARY, 1949 No. 2

Frederick B Isely (1873–1947)

One of the leaders in the investigation of the ecology of the orthoptera, Frederick B Isely, died December 30, 1947, at San Antonio, Texas. Professor Isely was born of Kansas pioneer stock June 20, 1873, at Fairview, Kansas. After education at Fairmount College and at the University of Chicago and a varied teaching experience in high schools and colleges, he became a college administrator in 1920, serving as dean, first of Culver-Stockton College and, later, Texas Woman's College. He returned to full-time teaching in 1931, at Trinity University, and was associated with this institution until his death, though his nominal retirement came in 1946. On the occasion of his retirement, Trinity awarded him the honorary Sc.D. degree.

The first important research engaged in by Dr. Isely concerned the orthoptera of Kansas, but this interest was replaced for a time by his studies of the distribution and migration of fresh-water mussels, this investigation being sponsored by the U. S. Bureau of Fisheries. After an interval in which teaching and administrative work eliminated research, Dr. Isely returned to his first interest, orthoptera. From the time he gave up administrative responsibilities until his death he was engaged in a continuous program of research on the ecology of the Acrididae and Tettigoniidae.

Among the important achievements coming from this series of studies was the clear experimental demonstration that many orthoptera have highly specific food habits. Associated with this was the rather detailed correlation between mandibular morphology and food habits. Incidental to major investigations, but creating a great deal of discussion at the time of publication, was the experimental demonstration of the advan-

tage of concealing coloration in protecting grasshoppers from predation by birds. At the time of his death Professor Isely was organizing in manuscript form his notes on the food habits of the Conocephalinae. This material clearly suggests that the carnivorous feeding of the meadow-grasshoppers, previously considered abnormal, is a part of the normal behavior of these insects.

That such a research program was carried out in a college where every instructor had a heavy teaching load, and Professor Isely was the only teacher of biology during most of these years, suggests a remarkable achievement. It is fortunate that recognition by both the National Research Council and the American Philosophical Society provided the necessary financial support, but the success of the program was certainly due primarily to a dominating curiosity about nature and a remarkable innate faculty for research.

GORDON ALEXANDER

Occurrence of a European Chalcidoid Hemitrichus rufipes Thomson in North America

By GEORGE E. WALLACE, Carnegie Museum, Pittsburgh, Pa.

In 1938, among some chalcidoid material taken to the U. S. National Museum for determination, Mr. A. B. Gahan identified a number of pteromalids for me as *Hemitrichus rufipes* Thomson, until then known only from Europe. The specimens had been collected from windows of the Carnegie Museum as early as 1908. Other specimens were taken later—two in 1939 and one in 1940—also on windows of the Carnegie Museum. Subsequent attempts to collect the insect on the museum grounds and in nearby Schenley Park have been unsuccessful. However, the span of time covered by the records indicates that the species probably is established in North America.

A European specimen of *H. rufipes* in the collection of the U. S. National Museum bears the doubtful host record of "? Ex bruchus?". This is the only host record known to me.

Some New Species of the Genus Volucella

By F. M. Hull, University of Mississippi

Recent studies of American Syrphid flies have disclosed a number of species of *Volucella* which appear to be undescribed. This paper presents the descriptions of these species. The types are in the author's collection.

Volucella belinda n. sp.

A greenish to bluish black species. Related to *pinkusi* Curran but distinct in the reddish brown ground color of the face and the black first abdominal segment. The mesonotal pile is chiefly black in front of the suture. Length 10 mm.

Male. *Head:* the face and cheeks are reddish brown, separated by a distinct black stripe. The upper part of the face is black, bearing yellowish white pollen. Pile of face yellowish white; front black with black pile; vertical pile black. The antennae are reddish brown, the elongate third segment gradually and uniformly tapering until it is distinctly narrow apically; it is faintly darker dorsally and apically. The arista is yellowish basally, black apically, with twenty-four long rays. Eyes not flattened, the upper facets but little enlarged. Ocular pile light reddish brown to brownish yellow, quite thick and abundant above and extending nearly to the bottom of the eye. *Thorax:* the mesonotum and scutellum are black with extremely strong opalescent greenish reflection which becomes coppery to purple where the light strikes it. The pile of the mesonotum is chiefly black and very fine and abundant. There is considerable pale pile however, just behind and medial to the humeri and viewed from the rear there is an obscure but rather broad stripe of scattered yellowish white hairs mixed in with black along the lateral margin of the mesonotum. There may be discerned in some specimens slender linear stripes of pale pile, three in number lying anteriorly on the middle of the mesonotum. There is some short pale pile on the posterior half of the mesonotum mixed in with the long black pile. Notopleura shining black, the upper wing mar-

gins and the lateral margin just medial to the notopleura also shining black. Humeri brown, post calli brown, the scutellum with a distinct, complete, preapical depression but no basal flattened areas. The depression is granulate. The pleura are shining black and black pilose. The bristles of the thorax are black; there is one on the mesopleura, four on the notopleura, three above wing, three on post calli, none in front of the scutellum and from eight to ten upon the scutellar margin. The ventral scutellar fringe is black; squamae dark brown, the fringe and border similar. *Legs:* quite black, only the extreme apex of the anterior and middle femora and extreme base of their tibiae dark brown; pile of legs black. *Wings:* strongly tinged with brown, fading away into a lighter brown along the posterior margin. There is a slight trace of yellowish color mingled with the brown in the costal cell, the first basal cell and the stigmal portion of the subcostal cell which is broken by a minute, diagonal, brown line. Marginal cell narrowly closed. *Abdomen:* first segment quite black, the remaining segments bright shining bluish or green; the pile is thick, abundant and yellowish white, except narrowly along the posterior margin of the second segment, more widely along the posterior margin of the third segment, and, except for a few black hairs on the apex of the fourth segment. Hypopygium black and black pilose. All the sternites metallic bluish cell widely open.

Female. Similar to the male, the front polished shining black with shallow concave depression across the middle. Marginal cell widely open.

Holotype: male, *allotype,* female, one male paratype and four female paratypes all from Nova Teutonia, BRASIL, collected by Fritz Plaumann, Jan.–April, 1948.

Volucella opeostoma n. sp.

Very similar to *pica* Schiner but distinct in the direction of the conical epistoma which points downward and not forward; also in the lack of black vittae upon the thorax, the absence of the wide black bands upon the abdomen and with a differently shaped antennae. Length 10.3 mm.

Female. *Head:* face pointed downward and a little forward into a very long narrow cone. The face is light brownish yellow in color with a diffuse brown stripe proceeding from the eye margin about the middle of the face nearly to the apex of the cone. Front pale yellow and narrow with black pile and the pile of the vertex black. The short sparse facial pile is golden. The antennae are pale orange, the third segment elongate, concave dorsally just beyond the middle and the apex swollen and slightly bulbous. The arista is yellow becoming blackish towards the apex with about sixteen dorsal rays. Pile of eyes distinctly yellow. *Thorax:* mesonotum pale reddish to brownish yellow with four subopaque reddish stripes of about the same color as the remainder of the mesonotum. The scutellum is concolorous with mesonotum and both subtranslucent. The pile of the scutellum dense and short and black on the disc with a few longer hairs and with a wide band of thick golden pile on the base. Scutellar margin three pairs of strong but long and slender black bristles. Post calli with three pairs of black bristles, base of wing with three, ontopleura with two, mesopleura with one black bristle. The anterior margin of the mesopleura is blackish on half the width except at the upper portion. The sternopleura and hypopleura are black except for the anterior portion of the hypopleura and the upper margin of the sternopleura. The coxae are dark brown on the anterior pair, black upon the remaining pairs and their trochanters, and black pilose. Squamae pale yellow with yellow fringe. *Legs:* femora and tibiae pale yellow, the tarsi orange. The hind tibiae with a distinct, rather wide, black annulus in the middle. This ring is blackish pilose and the femora and tibiae are of a deeper and more reddish color than in *pica*. *Wings:* tinged with brown on the anterior border including the costal and basal cells. *Abdomen:* entire abdomen a bright clear, rich, brownish orange and subtranslucent without any black borders upon the posterior margins of the segments but with a wide band of thick black pile on the posterior margin of the second segment, a still wider one on the posterior margin of the third segment which expands into a triangle in the middle of the segment, reaching almost to the base, and which expands narrowly along

the side margin almost to the base. Fourth segment with a large, triangular patch of black pile in the middle posteriorly reaching almost to the base, but none upon the lateral margins. This black pile is subappressed and the remaining pile elsewhere is bright golden red and subappressed.

Holotype: female, Bambito, Volcan, Chiriqui, PANAMA, Dec. 1946, collected by N. H. L. Krauss and presented to the author.

Volucella sappho n. sp.

A reddish brown species related to *correcta* Curran but distinguished by the pale brownish yellow to yellowish white pile of the eyes in both sexes. In both sexes of *correcta* the ocular pile is described as black. Length 8.5 mm.

Male. *Head:* face short, dark shining brownish red with yellowish pollen confined to the region beneath the antennae but reaching the eyes. Face with a few reddish brown or yellowish hairs on the side. The facial tubercle is low and scarcely darker in the middle. The front is very small and very dark brown with a few pale yellow hairs. The vertex is also reduced until it is practically non-existent in front of the anterior ocellus and behind the posterior ocellus; its pile is black. Eyes enormously developed, flattened from vertex to front with greatly enlarged facets and with moderately long pale brownish to yellowish white pile. Antennae reddish brown throughout, the third segment very slightly concave. Arista yellowish brown basally, dark brown to nearly black apically with twenty-one long rays above. *Thorax:* mesonotum and scutellum deep dark reddish brown, the margin of the scutellum perhaps slightly darker. The humeri, notoplura and the anterior margin of the pleura and the hypopleura, metapleura and posterior pteropleura only slightly lighter in shade. Disc of scutellum opaque with sparse, fine black pile and three pairs of strong marginal black bristles. Ventral fringe blackish. Squamae very dark brown with similar fringe and border; halteres yellowish with an opaque, quite white knob. Pile of mesonotum distinctly yellow on the anterior two-thirds, becoming dark reddish brown above the wing; it is black in front of the scutellum. There are no prescutellar bristles but the pile

is a little longer and coarser before the scutellum. There are three black bristles on the post calli, three supraalae, two notopleura and one mesopleura. Pleural pile narrowly blackish above becoming dark brown and then reddish brown below. *Legs:* reddish brown, made darker by the very dark brown pile, which is brown rather than black. The tarsal segments are extremely dark brown but not black. The hind basitarsi and the middle basitarsi are more reddish brown. *Wings:* uniformly tinged with pale yellowish brown, the costal cell more yellowish and the stigmal area yellowish with elongate, diffuse, brown basal stigmal spot. Marginal cell closed at the costa. Radial sector with seven long black bristles. *Abdomen:* first and second segments translucent light brownish yellow, the second becoming narrowly and diffusely darker or more reddish brown along the posterior margin, but the difference in shade is slight. Third segment obscurely yellowish on either side at the base and extending diffusely down nearly half the length of the segment except at the sides and the middle where somewhat darker brown prevails. Fourth segment similar to the third. Pile of the abdomen everywhere dark brownish black except upon the first segment where it is yellow and upon the anterior corners of the second where it is reddish. First and second sternites and the third sternite narrowly along the base on either side of the middle light translucent yellow; remainder reddish brown.

Female. Similar to the male in general. The front is black with a shallow, transverse depression upon the lower part of the front; there are longitudinal depressions along the eye margin, above the transverse depression, and there is an extremely faint medial depression on the upper part of the front. There is a more evident, medial, somewhat groove-like depression in the middle of the preantennal callus; this groove separates two slightly convex, low bullate eminences. Below these swellings there is on either side a diagonal crease immediately in front of the antennae. Scutellum more distinctly yellowish brown basally, darker posteriorly. First and second segments of the abdomen, their sternites, and the narrow anterior border of the third sternite very pale translucent yellow. Posterior half of

the second tergite widely black with opalescent bluish reflection, a little wider sublaterally and then diminishing to the sides where the black does not actually reach the posterior corners. Third tergite entirely of the same opalescent bluish black. Fourth and fifth similar except that there are a pair of obscure, elongate, large, yellowish brown, transverse spots on the basal margin.

Holotype: male, Summit, PANAMA, Canal Zone, Oct. 1946, *allotype,* female, Barro Colorado Island, PANAMA, Jan. 1947, presented to the author by N. L. H. Krauss.

Volucella vitrea n. sp.

A black species with opalescent reflections which are somewhat faint; face yellow with distinct reddish to brownish tinge. Related to *vitripennis* Curran. The scutellum is quite black, not dark red in ground color. The scutellum has three pairs of marginals instead of four and there are six prescutellars instead of twelve. Finally the basal halves of the abdominal tergites are not reddish in ground color; the whole abdomen is black. Length 10 mm.

Female. *Head:* the cheeks are light reddish brown becoming black behind at the lowest part of the eye. The face is light brownish yellow with a large low tubercle; it is black pilose on the tubercle, with abundant yellow pile and yellow pubescence on the sides and beneath the antennae. This pubescence and pile extends narrowly up the sides of the polished black front. The front is distinctly convex from posterior or anterior view. The vertex and occiput are black, their pile pale yellow, except for a single row of short, sharp, stiff black hairs upon the upper third of the occiput. Occipital pollen light brownish yellow. All frontal pile yellow except a few black hairs. Ocular pile dense, fine, distinctly yellow and rather short. Antennae orange brown on the first, second and the basal half of the elongate third segment. Third segment much narrowed on the outer two-fifths. This section of the antenna has nearly parallel sides and rounded apex and is dark smoky brown. The arista is nearly black with dark brown base and thirty-one long rays.

Thorax: mesonotum black with faint opalescent bluish reflections and coppery reflections where light strikes it directly. The scutellum is concolorous with the mesonotum, the humeri very dark brown. There are three heavy, stiff, black bristles on the notopleura, three above the wing base, three on the postcalli and three pairs on the scutellar margin, one upon the mesopleura and six before the scutellum. The pile of the mesonotum and of the pleura except the pteropleura and sternopleura is pale yellow. The sternopleural and pteropleural pile is black. Squamae pale yellow with yellow border and orange brown fringe. Plumulae orange brown. Halteres with orange stalk and nearly white knob. *Legs:* quite black with black pile. *Wings:* hyaline, the basal half of the stigmal area light yellow, the marginal cell closed and stalked, the remainder of the wings except the first section of the costal cell quite hyaline without clouding. The wing may have been denuded but there are villi only upon the apex of the marginal cell and the subcostal cell. *Abdomen:* quite black with very faint milky bluish reflections but no coppery or reddish or metallic bluish reflections. The pile is short and yellow upon the basal half of the second, third, fourth and fifth segments. Sternites shining black with long yellow pile, the only black pile being on the posterior margin of the fourth and fifth sternites.

Holotype: female, Pucallpa, PERU, Nov. 12, 1947, Jose Schunke.

Volucella nigroviridis n. sp.

A large black species with orange brown face and bluish green abdomen. Related to *bassleri* Curran. The scutellum is jet black with green reflection on the disc, and not brown in color. Mesonotum entirely deep black pilose. Eyes with reddish pile instead of greyish yellow pile. Length 14 mm.

Male. *Head:* the face and cheeks and front are light orange brown; the pile of the face is thick and short and reddish yellow about the tubercle with some black pile upon the tubercle itself and a narrow row of black pile close to the eye margin. The frontal pile is entirely black. The vertex is black with black

pile. The eyes are densely reddish or orange brown pilose. The upper facets are only slightly enlarged and the eyes touch for a considerable distance. There is a band of distinctly yellow pollen running from each eye margin beneath the antennae. The antennae are yellowish brown, the elongate third segment tapering to a rounded point apically and concave in the middle dorsally. The arista is pale yellow but black on the apical half. There are about thirty-five dorsal rays. *Thorax:* mesonotum black throughout except the humeri which are yellowish brown. All over the disc of the mesonotum and on the jet black scutellum there is a bluish green reflection which is coppery in certain lights. There are about fifteen prescutellar black bristles and eight pairs of long black marginal bristles; there are seven upon the postcalli, three above the wing and four on the notopleura; one upon the mesopleura. Pleura quite black with equally black pile; the squamae are translucent smoky grey with black fringe. The halteres are yellowish with opaque white knob. *Legs:* entirely black with black pile. *Wings:* hyaline but made distinctly grey by the very dense blackish villi. There is a large, blackish sepia quadrate spot in the middle of the wing and beyond it the basal portion of the stigmal area is yellow. The brown spot includes the apex of the costal cell. *Abdomen:* first segment black, the second black with the posterior margin and the whole of the lateral margin metallic bluish green in places with a golden or brassy reflection; where the green meets the black there is a purple reflection. The first segment is white pilose in the middle, black pilose laterally, and the second segment is white pilose on the anterior half throughout the middle but the black posterior pile encroaches laterally almost to the anterior corner. Third and fourth segments entirely metallic blue green with occasional brassy reflection and entirely black pilose. Sternites blue green; second sternite densely long white pilose except on the lateral third. Third and fourth sternites black pilose except for a small patch of yellowish pile anterio-medially.

Holotype: male. Pucallpa, PERU, Nov. 8, 1947, Jose Schunke.

Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae). Part XI

By CHARLES P. ALEXANDER, University of Massachusetts, Amherst, Massachusetts

The preceding part under this general title was published in ENTOMOLOGICAL NEWS 59: 207–214. The crane-flies considered herewith are from various far western states where they were collected in part by myself, in part by my good friends, George F. Knowlton and Peder Nielsen, as mentioned under the individual species concerned. The types of the novelties are preserved in my personal collection of these flies.

Limonia (Dicranomyia) nielseniana new species

Mesonotal praescutum yellowish gray with three darker stripes, the median one broader and more deeply colored; rostrum and basal palpal segments yellow; antennae black throughout, the flagellar segments moderately elongate; wings whitish subhyaline, stigma dark brown, conspicuous; a restricted dark pattern, chiefly evident as a seam along vein *Cu;* vein Sc_1 long, approximately three-fifths *Rs;* male hypopygium with the caudal margin of the tergite nearly truncate, the lateral lobes very low and inconspicuous; ventromesal lobe of basistyle blackened, long and conspicuous, bearing a small lateral tubercle; ventral dististyle small, the rostral prolongation compressed-flattened, more or less cleaver-shaped, the lower outer angle produced into a point; rostral spines widely separated, the outer one curved, the inner spine straight; aedeagus unusually slender.

♂. Length about 6–6.5 mm.; wing 6.5–7 mm.

♀. Length about 7.5 mm.; wing 8 mm.

Rostrum obscure yellow, palpi black, the basal two segments yellow. Antennae black throughout; flagellar segments oval, the outer ones more elongate, the terminal about one-third longer than the penultimate. Head gray, the center of vertex a little more brownish yellow; anterior vertex broad, approximately three times the diameter of scape.

Pronotum above dark brown, paler on sides. Mesonotal praescutum yellowish gray, with three brown stripes, the median one broader and more deeply colored, brownish black; sides of praescutum more pruinose; scutum and scutellum broadly obscure yellow, the sides brownish gray; mediotergite dark brown, sparsely pruinose, pleurotergite yellowish gray. Pleura chiefly yellowish gray, the ventral sternopleurite more or less darkened, especially behind. Halteres with stem pale, knob infuscated. Legs elongate; fore coxae infuscated, remaining coxae and trochanters yellow; femora obscure yellow, the tips narrowly infuscated; remainder of legs brownish yellow, the outer tarsal segments brownish black. Wings whitish subhyaline, the prearcular and costal fields a little more yellowed; stigma small, oval, dark brown, conspicuous; very narrow and inconspicuous brown seams over cord and outer end of cell *1st* M_2, vein *Cu* more evidently darkened; veins chiefly brown, more yellowed in the brightened fields. Venation: Sc_1 ending opposite or shortly beyond the origin of *Rs*, Sc_1 long, approximately three-fifths to three-fourths *Rs;* free tip of Sc_2 and R_2 in transverse alignment, the latter more than two times the former; cell *1st* M_2 subequal in length to vein M_4; *m–cu* shortly before the fork of *M*.

Abdominal tergites dark brown, their posterior borders narrowly pale; basal sternites chiefly yellow, the outer ones more brownish gray; hypopygium with the ventral dististyle yellow, the remainder more darkened. Male hypopygium with the tergite pale, transverse, the lateral lobes very low and inconspicuous; setae in three more or less distinct marginal groups, the median one concentrated. Basistyle blackened, relatively large, especially the conspicuous elongated ventromesal lobe, the latter bearing a small lateral tubercle on basal half, this provided with several long setae. Dorsal dististyle a gently curved pale rod, narrowed very gradually to an acute point. Ventral dististyle small, fleshy, its area a little less than that of the main body of the basistyle, the disk provided with unusually long setae, including a small brush or pencil on mesal face beyond base; rostral prolongation compressed-flattened, more or less cleaver-shaped, the lower outer angle an acute weakly sclerotized point;

two rostral spines, widely separated, the outer curved, the inner spine straight, the two separated by a distance nearly as long as the outer spine. Gonapophysis with the mesal-apical lobe slender, its tip acute. Aedeagus unusually slender, the tip with two appressed lobes that are separated only by a linear split.

Habitat. WYOMING. *Holotype:* ♂, Sunlight Valley, Shoshone National Forest, altitude 6,800 feet, September 6, 1948 (Peder Nielsen). *Allotopotype:* ♀, September 4, 1948. *Paratopotypes:* 8♂♀, September 4–6, 1948. The type series was secured in a marshy area.

I take unusual pleasure in naming this very distinct fly for my longtime friend and co-worker on the Tipulidae, Librarian Peder Nielsen, of Silkeborg, Denmark. Mr. Nielsen visited America in 1948 and spent nearly two weeks collecting in Wyoming. I am much indebted to Mr. Nielsen for the privilege of retaining the types of this fly. Superficially the species suggests *Limonia* (*Dicranomyia*) *ctenopyga* Alexander and *L.* (*D.*) *melleicauda* Alexander, but has the male hypopygium very distinct from these and from all other members of the subgenus. The fly was associated in nature with *L.* (*D.*) *vulgata* (Bergroth) which it superficially resembles, being readily separated by the closed cell *1st* M_2 and the entirely different male hypopygium.

Pedicia (Tricyphona) ampla euryptera new subspecies

♂. Length about 16–17 mm.; wing 15.5–16 mm.; antenna 1.8–1.9 mm.

Characters as in *ampla truncata* Alexander, differing in slight details of coloration and hypopygial structure. Head and thorax clear gray, the praescutum with four narrow brownish gray stripes; scutellum obscure yellow, infuscated medially; dorsopleural region broadly pale yellow. Wings fully-developed, as shown by the measurements, the venation normal; membrane light gray, the prearcular and costal fields more yellowed; veins brown, much darker than in *truncata*. Male hypopygium with the tergal lobe broader than in *truncata*, the caudal margin very gently emarginate, the lateral lobes thus formed low and incon-

spicuous. In *truncata* the caudal margin is truncate, without lateral lobes.

Habitat. ARIZONA. *Holotype:* ♂, White Mountains, Alpine, altitude 8,400 feet, June 23, 1947 (C. P. Alexander). *Paratype:* 1 ♂, Greer, on the Little Colorado River, altitude 8,800 feet, June 22, 1947 (C. P. Alexander).

Erioptera (Empeda) exilistyla new species

General coloration of entire body dark brownish gray; rostrum, palpi, antennae and legs black; wings whitish subhyaline, the prearcular and costal fields more whitened; stigma pale brown, inconspicuous; veins beyond cord with macrotrichia; vein R_3 oblique, shorter than vein R_{3+4}; cell *1st* M_2 rectangular, shorter than vein M_4; male hypopygium with the tergite large, its caudal margin very gently concave; both dististyles unusually slender, both simple, the outer style a long slender yellow rod that narrows gradually to an acute point; gonapophyses arising close together at the midline, each terminating in an elongate blackened terminal spine.

♂. Length about 3.8 mm.; wing 4.3 mm.

Rostrum and palpi black. Antennae 16-segmented, black throughout; flagellar segments long-oval; verticils relatively short and inconspicuous. Head dark brownish gray; anterior vertex broad.

Pronotum large, brownish gray. Mesonotum brownish gray, the praescutum with a poorly indicated darker median stripe; both the tuberculate pits and pseudosutural foveae black, the former placed close together at near mid-distance between the anterior margin of the praescutum and the pseudosutural foveae. Pleura, including the dorsopleural membrane, blackened, heavily gray pruinose. Halteres with stem very light brown, knob light yellow. Legs with the coxae black, pruinose; remainder of legs black. Wings whitish subhyaline, the prearcular and costal fields even more whitened; stigma pale brown, relatively inconspicuous; veins light brown, more brownish yellow in the whitened fields. Veins beyond cord with macrotrichia. Venation: Sc_1 ending nearly opposite fork of Rs, Sc_2 some distance

from its tip, Sc_1 alone only a little shorter than R_{2+3+4}; vein R_{3+4} longer than the oblique vein R_3; distance on costa between veins R_{1+2} and R_2 exceeding two-thirds the length of the latter; cell *1st* M_2 closed, rectangular, shorter than vein M_4; *m–cu* about one-third its length beyond the fork of *M;* vein *2nd A* nearly straight. In the unique type, the venation of the right wing, mounted in balsam, is abnormal in the medial field.

Abdomen, including hypopygium, black, more or less pruinose. Male hypopygium with the tergite large, its caudal margin very gently concave. Basistyle not produced beyond origin of dististyles. Both dististyles unusually slender, simple; outer style a long yellow rod that narrows gradually into an acute point; inner style a little shorter and stouter, dark-colored, the tip obtuse. Gonapophyses arising close together at the midline, on either side of base of the shorter aedeagus, each apophysis expanded very slightly before narrowing into an elongate blackened terminal spine.

Habitat. WASHINGTON. *Holotype:* ♂, Stevens Pass, Snoqualmie National Forest, altitude 4,000 feet, July 8, 1948; swept from mountain hemlock (C. P. Alexander).

Although the male hypopygium is quite different from that of other described species, the present generic and subgeneric assignment seems correct. The fly is most like *Erioptera* (*Empeda*) *tristimonia* Alexander yet is very distinct. In its general appearance, especially the venation, the fly much resembles certain of the small species of the genus *Rhabdomastix*.

Erioptera (Psiloconopa) ecalcar new species

♂. Length about 4–4.5 mm.; wing 4.5–5 mm.

♀. Length about 4.5–4.8 mm.; wing 5–5.2 mm.

Closely allied to *margarita* Alexander, differing in the structure of the male hypopygium. General coloration of body yellow, the disk of the head and thoracic dorsum a trifle more brownish yellow. Antennae pale basally, the outer segments pale brown. Halteres pale yellow. Legs obscure yellow or brownish yellow, the outer tarsal segments infuscated. Abdominal tergites brown, the incisures, sternites and hypopygium

yellow. Male hypopygium with the outer dististyle bifid, lacking the third or intermediate arm or point that is found in *margarita*. Lateral gonapophyses appearing as straight, entirely pale rods that narrow to the simple tips. In *margarita* these rods are broader, the tips conspicuously blackened and spinulose.

Habitat. UTAH. *Holotype:* ♂, Zion National Park, Weeping Rock, altitude 4,500 feet, June 21, 1942 (C. P. Alexander). *Allotopotype:* ♀, with the type. *Paratopotypes:* 5 ♂♀, May 5 and September 7, 1943 (G. F. Knowlton).

Erioptera (Erioptera) hohensis new species

Allied to *villosa;* thoracic dorsum medium brown, gray pruinose, the lateral praescutal borders broadly yellow; rostrum light yellow; thoracic pleura chiefly infuscated; legs obscure yellow; wings with a strong fulvous tinge, the costal field more yellowed, veins yellow; abdomen brown, the hypopygium a trifle more yellowed; male hypopygium with the outer dististyle a flattened paddle, its tip narrowly obtuse, blackened; tip of inner dististyle an acute blackened spine; gonapophyses slender, each terminating in a long slender spine, the subterminal part with abundant microscopic spicules.

♂. Length about 5.5 mm.; wing 5.8 mm.

Rostrum light yellow; palpi brownish black. Antennae with scape and pedicel obscure yellow, flagellum brown; flagellar segments with long conspicuous verticils. Head light fulvous yellow, the center of vertex very weakly darkened and sparsely pruinose.

Pronotum light yellow. Mesonotal praescutum with the disk medium brown, gray pruinose, the margins broadly yellow; scutal lobes brownish gray, the lateral margins clear light yellow; scutellum reddish yellow; mediotergite reddish brown, sparsely pruinose, the anterolateral border yellow; pleurotergite chiefly yellow, more darkened ventrally. Pleura chiefly infuscated, the dorsopleural region broadly light yellow. Halteres yellow, the knobs moderately darkened. Legs obscure yellow, the outer tarsal segments darkened. Wings with a strong fulvous tinge,

the prearcular and costal fields somewhat more yellowed; veins yellow. Venation: Outer half of vein *2nd A* strongly sinuous.

Abdomen brown, the hypopygium a trifle more brightened. Male hypopygium with the outer dististyle a flattened paddle, the narrowly obtuse tip blackened. Inner dististyle a little shorter, a trifle expanded on the outer fourth and here produced into an acute spine on outer margin, the longer apex narrowed to an acute blackened spine. Gonapophysis narrow, blackened apically, terminating in a long slender spine, the subterminal part with abundant microscopic spicules.

In *villosa,* male hypopygium with the outer dististyle slender; inner style with apex obtuse; gonapophysis appearing as a flattened dark-colored blade that does not terminate in a spine, the entire outer end provided with microscopic spinules.

Habitat. WASHINGTON. *Holotype:* ♂, Hoh River, Jackson Ranger Campground, Olympic National Park, Jefferson Co., altitude 580 feet, July 22, 1948; swept from sparse vegetation on river bars (C. P. Alexander).

The closest relative of the present fly is *Erioptera* (*Erioptera*) *villosa* Osten Sacken, especially the western Nearctic race of this, *dilatata* Alexander. The present insect is readily told by the coloration of the body, legs and wings, and especially by the structure of the male hypopygium, as compared above.

A. D. Imms

According to a news item from Sidmouth, England, **Dr. Augustus Daniel Imms** died April 3, 1949, at the age of 68 years. He was formerly Forest Zoologist to the Government of India, and later, Chief Entomologist of the Rothamsted Experimental Station, Harpenden, England. Dr. Imms has written on a wide variety of entomological subjects and is known also through his: "A general textbook of entomology," one of the really outstanding books in its field, of which the seventh edition is to appear May twelfth of this year.

Current Entomological Literature

COMPILED BY RAYMOND Q. BLISS AND R. G. SCHMIEDER.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the year 1949 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—An.—Entomological Society of Ontario, Montreal Branch. Short History, pp. 5–7. Lyman entomological collection and library, pp. 13–14. Commemorative program of 75th anniversary. [Adv. Sci.] 5(19). **Dambach, C. A.**—A study of the ecology and economic value of crop field borders. [Ohio State Univ., Grad. School Studies] *2*: i–xi + 3–205, 1948. **Eichler, W.**—Some rules in ectoparasitism. [6] 12 ser., 8: 588–98, 1948. **Jachowski, L. A., Jr.**—Notes on the biology and control of mosquitoes at Umiat, Alaska. [52] 8: 155–65, 1948. **Jenkins, D.**—Ecological observations on the mosquitoes of central Alaska. [52] 8: 140–47, 1948. Ecological observations on the blackflies or punkies of central Alaska. *Ibid.*: 148–54. **Linduska, J. P. and E. W. Surber**—Effects of DDT and other insecticides on fish and wildlife. [U. S. Dept. Interior, Fish and Wildlife Serv.] Circular 15, 1948. **Martorell, L. F.**—A survey of the forest insects of Puerto Rico. [Jour. Agric. Univ. P. R.] 29 (2 & 3): 69–608, ill., 1945. **Newcombe, C. L.**—A method for studying growth in different groups of arthropods. [80] 109: 84–85. **Oman, P. W. and A. D. Cushman**—Collection and preservation of insects. [U. S. Dept. Agric. Miscell. Publ.] No. 601: 1–42, ill., $0.15, 1948. **Patrick, R. and H. R. Roberts**—Biological survey of the Conestoga Creek basin. (A report to the Sanitary Water Board of the Commonwealth of Pennsylvania by the Academy of Natural Sciences of Philadelphia.) (Section on Arthropoda by C. B. Wurtz, H. W. Levi and J. W. H. Rehn.) Mimeographed, Jan. 10, 1949. **Remington, J. E.**—

Ferdinand Heinrich Strecker (1836–1901) (Biogr.). [Lep. News] 2: 98, ill., 1948. **Sherman, J. D., Jr.**—J. R. de la Torre-Bueno (Obit.). [19] 43: 154–56, 1948. **Smart, J.** with chapters on fleas by **K. Jordan** and on Arachnids by **R. J. Whittick**—Handbook for the identification of insects of medical importance. 2nd ed., Brit. Mus. Nat. Hist. 205 pp., 13 pls., 178 figs., 1948, 20 s. **Tischler, W.**—Biocönotische untersuchungen an Wallhecken. [Zool. Jahrb., Abt. Syst.] 77: 283–400. **Torre-Bueno, J. R.**—Entomology in the United States. [19] 43: 141–48, 1948. Some more Entomologists. *Ibid.:* 150–53. **Toumanoff, C.**—Un épizootie mortelle chez les chenilles de Fausses teignes des ruches, Achroea grisella et Galleria melonella due à Coleogregarina ephestiae. [C. R. Acad. Sci., Paris] 227: 1274–75, 1948. **Tulloch, G. S.**—A resolution of the Brooklyn Entomological Society (Torre-Bueno). [19] 43: 149, 1948.

ANATOMY, PHYSIOLOGY, MEDICAL—Barth, R.—Untersuchungen am Hautmuskelschlauch der Raupen von Catacola-Arten (Zugleich ein Beitrag zur Frage der Insertion des Arthropodenmuskels). [Zool. Jahrb., Abt. Anat.] 69: 405–34, 1945. **Bettini e Tentori**—Insetti e vitamine. [Riv. di Parassit.] 8: 129–39, 1947. **Chiossi, E.**—Sulla velocità di sviluppo nelle larve e nelle crisaldi di Bombyx mori in rapporto al sesso ed al peso degli animali. [Atti Soc. Nat. e Mat. di Modena] 74: 38–52, 1943. **Deay, H. O. and J. G. Taylor**—Preliminary report on the relative attractiveness of different wave lengths of radiant energy to corn borers. (Abstract.) [Proc. Indiana Acad. Sci.] 57: 105, 1948. **Deroux-Stralla, D.**—Recherches expérimentales sur le role des "glandes ventrales" dans la mue et la métamorphose, chez Aeschna cyanea (Odonata). [C. R. Acad. Sci., Paris] 227: 1277–78, 1948. **Doyle, W. L.**—Phosphatase activity of Drosophila salivary glands. [74] 89: 415–19, 1948. **Esselbaugh, C. O.**—Notes on the bionomics of some midwestern Pentatomidae. [27] 28: 1–73, 1948. **Eidmann, H.**—Zur Kenntnis der Ökologie von Azteca muelleri (Formic.) ein Beitrag zum Problem der Myrmecophyten. [Zool. Jahrb., Abt. Syst.] 77: 1–48, Tafel 1–3, 1945. **Franz, H.**—Untersuchungen über die Kleintierwelt ostalpiner Böden. II. Die Collembolen. [Zool. Jahrb., Abt. Syst.] 77: 81–162, 1945. **Franz, J.**—Ökologische Beobachtungen am Buchdrucker (Ips typographus) Teil I. [Zool. Jahrb., Abt. Syst.] 77: 426–42, 1948. **Gentil, K.**—Beitrag zur Morphologie und Optik der Schillerschuppen von Hoplia

coerulea Drury und H. farinosa Linne (Coleop.). [Zeitschr. Morph. u. Ökol. Tiere.] 40: 299–313, ill., 1944. **Hachfeld, G.**—Ökologische und morphologische Beobachtungen an mitteleuropäischen Crabronen (Sphec.). [Zool. Jahrb., Abt. Syst.] 77: 49–80, 1945. **Jaschke, P. von**—Beiträge zur Kenntnis der Cicindelinenelytren insbesondere der Zusammenhänge zwischen Zeichnung und innerem Aufbau. [Zeitschr. Morph. u. Ökol. Tiere] 40: 418–50, ill., 1944. **Laschat, F.**—Die embryonale und postembryonale Entwicklung der Netzaugen und Ocellen von Rhodnius prolixus. [Zeitschr. Morph. u. Ökol. Tiere] 40: 314–47, ill., 1944. **Lupo, V.**—Studio morfologico, anatomico e istologico della Anomala ausonia var. neapolitana Reitt. (Scarab). [Boll. Lab. Ent. Agrar. Portici] 7: 97–315, ill., 1947. **McElroy and Rainwater**—Spectral energy distribution of the light emitted by firefly extracts. [105] 32: 421–25, 1948. **Michener, C. D.**—Observations on the mating behavior of harvester ants. [45] 56: 239–42, 1948. **Mikłaszewska, A.**—Experiments on the plasticity of instinct in the caterpillars of Nympula namphaeata (Pyralid). [C. R. Men. de la Cl. Sci., Math. et Nat., Cracovie] 1946: 25, 1948. **Mosna, E.**—Su und caratteristica bilogica del Culex pipiens autogenicus di Latina. [Riv. di Parassit.] 8: 125–26, 1947. **Partmann, W.**—Untersuchungen über die komplexe Auswirkung phylogenetischer Körpergrössenänderungen bei Dipteren. [Zool. Jahrb., Abt. Anat.] 69: 507–58, 1948. **Pereira, C. e M. P. de Castro**—Forese e partenogenese arrenótoca em Macrocheles muscae domesticae (Acarina) e sua significação ecologica. [Arq. Inst. Biol., São Paulo] 18: 71–89, 1947–48. **Roberti, D.**—Le oplocampe de Susino. I. Hoplocampa flava (L.) (Tenthredinidae). (External anat. of larva, adult and parasites.) [Boll. Lab. Ent. Agrar. Portici] 7: 41–92, ill., 1947. **Saccà, G.**—Sull'esistenza di mosche domestiche resistenti al DDT. [Riv. di Parassit.] 8: 127–28, 1947. **Schoof, H. F.**—Common ectoparasites of the Norway rat, Rattus norvegicus, in North Carolina and the effects of 10 percent DDT dust treatments in their control upon the serology of the rat. [38] 64: 208–15, 1948. **Schulze, P.**—Über eigentümliche Beziehungen zwischen dem Pigmentgehalt des Chitins u. bestimmten Körperbildungen bei der Nashornzecke Amblycentor rhinocerinus (Acarina). [Zeitschr. Morph. u. Ökol. Tiere] 40: 406–17, ill., 1944. **Siang Hsu, W.**—The golgi material and mitochondria in the salivary glands of the larva of Drosophila melanogaster. [74] 89: 401–14, 1948. **Strenger, A.**—Funk-

tionelle Analyse des Orthopterenkopfes, eine systematisch-funktionsanatomische Studie. [Zool. Jahrb., Abt. Syst.] 75: 1–72, 1942. **Trager, W.**—Biotin and fat-soluble materials with biotin activity in the nutrition of mosquito larvae. [Jour. Bio. Chem.] 176: 1211–23, 1948. **Valente, D.**—Mecanismo da respiração de Trichodactylus petropolitanus (Crus.). [Zoologia, São Paulo] 13: 259–327, 1948. **Wigglesworth, V. B.**—The insect as a medium for the study of physiology. [69] B, 135: 430–35. **Yasumatsu, K.**—Some analyses on the growth of insects, with special reference to a phasmid, Phraortes kumamotoensis Shiraki (Orthop.). [Jour. Dept. Agric. Kyusyu Imp. Univ.] 8: 1–579, 1946.

ARACHNIDA AND MYRIOPODA—Bequaert, J.—Additional records of bird ticks for the northeastern United States. [19] 43: 156, 1948. **de Castro, M. P.**—Reestrutturação generica da familia Rhinonyssidae (Gamasid) e descrição de algumas especies novas. [Arq. Inst. Biol., São Paulo] 18: 285–87, 1947–48. **Pereira and de Castro**—(See under Anatomy.) **Schulze, P.**—(See under Anatomy.)

SMALLER ORDERS—Deroux-Stralla, D.—Odonata (See under Anatomy.) **Eads, R. H. and G. C. Menzies**—An undescribed Anomiopsyllus Baker from the pack rat, Neotoma micropus (Siphonaptera). [43] 21: 133–36, ill. **Eichler, W.**—Mallophaga. (See under General.) **Emerson, K. C.**—Two new species of Mallophaga. [43] 21: 137–40, ill., 1948. **Franz, H.**—(See under Anatomy.) **Fraser, F. C.**—The Odonata of the Argentine Republic. II. [Acta Zool. Lilloana] 5: 47–67, ill. (*), 1948. **Martorell, L. F.**—(See under General.) **Montgomery, B. E.**—The distribution and relative seasonal abundance of the Indiana species of Lestidae. (Odonata: Zygoptera). [Proc. Indiana Acad. Sci.] 57: 113–15, 1948. **Schoof, H. F.**—(See under Anatomy.) **Silvestri, F.**—Descrizione di due specie neotropicali di Zorotypus (Zoraptera). [Boll. Lab. Ent. Agrar. Portici] 7: 1–12, ill., 1947. **Urbanski, J.**—Critical review of dragon-flies of Poland. (In Polish, Engl. summary.) [Ann. Univ. Mariae Curie-Skłodowska] 3: 289–317, 1948.

ORTHOPTERA—Lieberman, J.—Revisión del género Eurotettix Br., 1906, con la descripción de una nueva especie argentina: E. lilloanus. [Acta Zool. Lilloana, Tucuman] 5: 33–46, ill, 1948. **Martorell, L. F.**—(See under General.) **Sellier, R.**—L'evolution morphologique de Locusta migratoria L. dans la région Amoricaine. [Arch. Zool. Expt. et

Gen., Notes et Rev.] 85: 190–207. **Strenger, A.**—(See under Anatomy.) **Yasumatsu, K.**—(See under Anatomy.)

HEMIPTERA—Balduf, W. V.—A summary of studies on the ambush bug, Phymata pennsylvanica americana. [85] 41: 101–06, 1948. **Beamer, R. H.**—Some new speices of Delphacodes (Fulgorid). Pt. V. [43] 21: 111–19, ill., 1948. **Esselbaugh, C. O.**—(See under Anatomy.) **Evans, J. W.**—Some observations on the classification of the Membracidae and on the ancestry, phylogeny and distribution of the Jassoidea. [88] 99: 497–515, ill., 1948. **Griffith, M. E.**—The bloodsucking cone-nose or "big bed-bug," Triatoma sanguisuga in an Oklahoma City household. [Proc. Okla. Acad. Sci.] 28: 24–27, 1948. **Hungerford, H. B.**—The eggs of Corixidae. [43] 21: 141–46, ill., 1948. The Torre-Bueno collection of Hemiptera. [19] 43: 148, 1948. **Hussey, R. F.**—A necessary change of name (Sald.). [19] 43: 153, 1948. **Knowlton, G. F.**—A new capitophorus aphid. [43] 21: 121–23. Aphids from the west. *Ibid.:* 147–49, 1948. **Laschat, F.**—(See under Anatomy.) **Lindberg, H.**—Materialien zu einer Monographie der Gattung Tettigometra (Cicad.). [Notulae Ent., Helsingfors] 28: 1–40, ill. (*), 1948. **Martorell, L. F.**—(See under General.) **Mukerji and Venkatraman**—(See under Lepidoptera.) **Mukherjee, F. D. and N. S. Gupta**—Biology of the common mealybug Ferrisia virgata (Coccid), a pest on jute in Bengal. [Proc. Zool. Soc. Bengal] 1: 109–15, 1948. **Turner, W. F.**—Insect vectors of phony peach disease. [80] 109: 87–88.

LEPIDOPTERA—Barth, R.—(See under Anatomy.) **Bourquin, F.**—Metamorfosis de Automeris naranja (Hemileuc.). [Acta Zool. Lilloana] 5: 69–79, ill., 1948. Notas sobre la metamorfosis de Megalopyge chacoma. *Ibid.:* 113–15. Metamorfosis de Morpho catenarius argentinus (Morphid). *Ibid.:* 117–29. **Chiosi, E.**—(See under Anatomy.) **Hayward, K. J.**—Three new genera of neotropical Hesperiidae. [Acta Zool. Lilloana] 5: 97–102, 1948. Hesperioidea Argentina, XIX. *Ibid.:* 103–12. Nueva especies de Hesperidos neotropicales. *Ibid.:* 175–83. **Hessel, S. A.**—New Jersey Ropalocera—Strymon cecrops. [45] 56: 243–44, 1948. **Jörg, M. E.**—Un organ de especial differenciacion anatomomicroscopica en la oruga de Morpho catenarius argentius. [Acta Zool. Lilloana] 5: 131–36, 1948. **Martorell, L. F.**—(See under General.) **McDunnough, J.**—A new race of Pseudohazis hera from southern Colorado

(Saturnid). [45] 56: 249–50, 1948. **Mikłaszewska, A.**—(See under Anatomy.) **Mukerji, S. and T. V. Venkatraman**—Studies on Epipyrops melanoleuca (Lepid.), an ectoparasite of the sugar-cane leafhopper, Pyrilla spp. (Fulgorid). [Proc. Zool. Soc. Bengal] 1: 91–102, ill., 1948. **Patel, G. A. and A. C. Basu**—Bionomics of Leucinodes orbalonis (Lep.) and Epilachna spp. (Col.), the important pests of brinjal, Solanum melongena, in Bengal. [Proc. Zool. Soc. Bengal] 1: 117–29, 1948. **Remington, P. S. and J. D. Eff**—A collecting trip in search of Speyeria egleis secreta. [Lep. News] 2: 91–92, 1948. **Toumanoff, C.**—(See under Anatomy.) **Viette, P.**—Lepidopteres homoneures. [Faune de France] No. 49: 1–83, 1948.

DIPTERA—Bettini e Tentori—(See under Anatomy) **Breland, O. P.**—Some bicolored mosquito larvae. [43] 21: 120–21, 1948. **Brown, W. L., Jr.**—Results of the Pennsylvania mosquito survey of 1947. [45] 56: 219–32, 1948. **Brundin, L.**—Zur Kenntnis der schwedischen Chironomiden. [Ark. för Zoologi] 39A (3): 1–95, 15 pls., 1947. **Doyle, W. L.**—(See under Anatomy.) **Hardy, D. E.**—New and little known neotropical Dorilaidae (Pipunculid). [43] 21; 124–33, ill., 1948. **Harmston, F. C.**—Dipterous predators of the mosquitoes in Utah and Wyoming. [33] 9: 21–23, 1948. **Jachowski, L. A.**—(See under General.) **Jenkins, D.**—(See under General.) **Manuel, H. D.**—A mosquito survey of Lake Bloomington. [85] 41: 101–06, 1948. **Martorell, L. F.**—(See under General.) **Mosna, E.**—(See under Anatomy.) **Partmann, W.**—(See under Anatomy.) **Saccà, G.**—(See under Anatomy.) **Stone, A.**—Simulium virgatum Coq. and a new related species (Simuliid). [48] 38: 399–404, ill., 1948. **Trager, W.**—(See under Anatomy.) **Twinn, C. R., B. Hocking, W. C. McDuffie and H. F. Cross**—A preliminary account of the biting flies of Churchill, Manitoba. [24] 26: 334–57, ill., 1948.

COLEOPTERA—Bechyne, J.—Notes sur des Chrysomeloidea de l'Amerique du Sud. [Acta Zool. Lilloana] 5: 185–202, 1948. **Cazier, M. A.**—The origin, distribution, and classification of the tiger beetles of Lower California (Cicindel.). [2] No. 1383: 1–28, ill. (k), 1948. **Fattig, P. W.**—The Carabidae or ground beetles of Georgia. [Emory Univ. Bull.] Jan. 15, 1949. **Franz, J.**—(See under Anatomy.) **Gentil, K.**—(See under Anatomy.) **Haedo Rossi, J. A.**—Nota sobre Brentidos de la Argentina. [Notas Mus. de la Plata] 13 (105): 141–64, ill. (k), 1948. **Heberdey, R. F.**—Ein Wasserläufer unter den Käfern (Paederus rubro-

thoracicus) (Staph.). [Zeitschr. Morph. u. Ökol. Tiere] 40: 361–76, ill., 1944. **Jaschke, P. von**—(See under Anatomy.) **Linsley, E. G.**—The genus Trachys in the United States (Buprest.). [45] 56: 251, 1948. **Lupo, V.**—(See under Anatomy.) **Martorell, L. F.**—(See under General.) **McElroy and Rainwater**—(See under Anatomy.) **Munrós, F.**—Descripción de diez nuevas especies de Lamprosoma neotropicales (Chrysom.). [Acta Zool. Lilloana] 5: 81–95, 1948. Notas sobre Eupoda argentinos (Chrysom.). *Ibid.:* 203–20. **Riegel, G. T.**—Sex and altitude of flight in Cyclocephala (Scarab.). [85] 41: 113–15, 1948. **Rossi, J. A. H.**—Nota sobre brentidos de la Argentina. Género Brenthus (Rhynco.). [Notas Mus. Plata] 13(105): 141–64, 1948 (k*). **Van Emden, F. I.**—A Trox larva feeding on locust eggs in Somalia. [69] 17: 145–48, ill., 1948. **Wittmer, W.**—6. Beitrag zur Kenntnis der neotropischen Malacodermata (Canth., Malach., Dasytid). [Rev. Soc. Ent. Argent.] 14: 148–54 (*).

HYMENOPTERA—Dreisbach, R. R.—The description of a new species of the genus Ceropales (Psammochar.) with a key to the species of North America. [45] 56: 233–38, 1948. **Gaul, A. T.**—Additions to vespine biology. VI: Notes on Vespula rufa var. consobrina. [19] 43: 160–62. **Hachfeld, G.**—(See under Anatomy.) **Leorini, M.**—Sulla cattura di un nido di Vespa crabro e su alcune considerazione che si possono trarre dal suo studio. [Atti Soc. Nat. e Mat. di Modena] 78: 69–71, ill., 1947. **Martorell, L. F.**—(See under General.) **Michener, C. D.**—The generic classification of the Anthidiine bees (Magachil.). [2] No. 1381: 1–29 (k), 1948. (Also see under Anatomy.) **Ogloblin, A.**—Descripción de dos géneros nuevos de Paracolletini Argentina (Colletidae). [Notas Mus. de la Plata] 13 (106): 165–78, ill., 1948. **Pini, G.**—Sulle dimensioni degli individui di una popolazione di Vespa crabro catturata alla Gaggiola (Castelnueva nei Monti-Reggio E.) e sul loro confronto con le popolazioni di Sabaudia e de Circeo. [Atti Soc. Nat. e Mat. di Modena] 78: 72–74, 1947. **Roberti, D.**—(See under Anatomy.) **Shappirio, D. G.**—Observations on the biology of some mutillid wasps. II, with new distributional records. [19] 43: 157–59, 1948. **Willink, A.**—Observaciones sinonimicas acerca de Chlorion thomae y especies afines de la Argentina (Sphecid). [Acta Zool. Lilloana] 5: 313–20, 1948. Notas sobre Bembicidos neotropicales (Bembecid). *Ibid.:* 321–23.

Reviews

CATALOGUE OF THE ODONATA OF CANADA, NEWFOUNDLAND AND ALASKA, by Francis C. Whitehouse. Transactions, Royal Canadian Institute, xxvii (57): 3–56, Oct., 1948. Published Nov. 26, 1948.

This catologue lists 186 species for the areas indicated in the title. Where two or more forms, or subspecies, are recognized as occurring therein, each is given the same number, but is distinguished by a different letter, thus *Sympetrum semicinctum semicinctum* (Say) is 169a and *S. s. occidentale* Bartenef is 169b. This treatment raises the number of forms catalogued from 186 to 196. Incidentally, it is of interest to note that the recognition of two or more subspecies of the same species is confined to the genera *Agrion* (our old lamented, but unmentioned, friend *Calopteryx*), *Aeschna* (with the *c*), *Ophiogomphus, Somatochlora, Tetragoneuria, Erythemis* and *Sympetrum*. Genera with many species, but no Canadian subspecies, are *Argia, Enallagma, Gomphus, Lestes, Leucorrhinia* and *Libellula*.

For each species and subspecies are given: a sequence number of this catalogue, just discussed; the number under which it appears in Muttkowski's Catalogue of the Odonata of North America of 1910; its name and that of its original describer; its distribution by political provinces within the area of the title (in the case of British Columbia further differentiated into mainland, m, Vancouver Island and Queen Charlotte Islands); flight period; Merriam's life zone(s) (here capital letters "are used when the species finds optimum conditions in the zone indicated, lower case where the species extends only part way into the zone or is scarce there"); references to "the larger standard works of more recent issue (where the figures are suitable)," in preference "to earlier papers, which may be no longer obtainable or not possessed by the later workers in the field"—"for full bibliographies of species described prior to 1910, the reader is referred to the indispensable pages of Muttkowski's Catalogue," even in most cases for the original description; finally, references to descriptions and figures of the nymph. All this information is compactly given in usually ten or fewer lines for each species or subspecies, clearly spaced and printed.

The sequence of the families is Agrionidae, Lestidae, Coenagrionidae, Aeschnidae, Petaluridae, Gomphidae, Cordulegastridae, Corduliidae and Libellulidae. No subfamilies or other divisions of the families, and no subdivisions of the genus

Gomphus in the Selysian sense other than *Lanthus* Needham, are mentioned. A reference list, arranged alphabetically by authors, occupies pages 44–53, index pages 55–56.

The author justly remarks in his Introduction: "In Canada our knowledge of the distribution of the species has increased very considerably, largely due to the indefatigable zeal of Dr. E. M. Walker . . . the writer desires to make it clear that at least 80 per cent (probably more) of the information given [here] represents the work of one man: Dr. E. M. Walker. The groundwork of the study of dragonflies in Canada is all his, with some other of us, first and last, helping out by hunting in the corners." Nay more. Dr. Walker's monographs of the genera *Aeshna* and *Somatochlora,* based so largely on the Canadian fauna, stand out as the finest works of their kind on Odonata of any part of the world.

Mr. Whitehouse has given us a most valuable summary of the Odonata of America north of the 49th parallel, the Great Lakes and New England. Cataloguers of other groups of animals also will obtain useful suggestions for arrangement of their works by looking over his pages.

PHILIP P. CALVERT

COLEOPTERA OR BEETLES EAST OF THE GREAT PLAINS, by J. Gordon Edwards, 186 pages including 23 plates, cloth 8½ x 11. Lithoprinted by Edwards Brothers, Inc., Ann Arbor, Michigan, January 1949. Price $3.50 postpaid, order from J. Gordon Edwards, 392 Prairie Avenue, Wilmington, Ohio.

In 1930, "A Manual of the Genera of Beetles of America" by Dr. J. Chester Bradley, appeared and filled a long felt need among coleopterists and would be coleopterists. Long since out of print and increasingly difficult and expensive to secure, it left a need for a book covering a wider area than just a small section or state. In the reviewer's opinion, this new book with its key to all the families of beetles east of the Great Plains and other features to be commented upon, fills in great part, at least, this need, and in some respects goes further. It provides a text which not only will prove of great help to the beginning coleopterist, but will also be very useful to those more advanced.

The first nine pages are devoted to such introductory material as size of the order Coleoptera, the function of the book, a very brief and elementary discussion of nomenclature, an explanation of what a beetle is, and of the parts used in identification, a paragraph on how to use the key, a page of some general

Coleoptera references, and finally an alphabetical tabulation of the families of Coleoptera, giving for each family the number of species and varieties in the United States, and also east of the Mississippi River.

The key to the families follows and is illustrated by 449 original line drawings on 23 plates, so arranged that the drawings are opposite the pertinent pages. The key itself without the plates occupies 21 solid pages with no break between the couplets. Had space allotted to the figures on the plates been used less generously and devoted instead to improving the typography of the keys, it would have made their use much easier. One further criticism of the keys, which may well be a personal idiosyncrasy: A 21 page key is in itself formidable. Broken up into smaller units or series, it would be much easier to handle and follow.

The rest of the book, with the exception of an adequate glossary, index and phylogenetic list of the families of Coleoptera for the region treated, is devoted to a discussion of each of the 136 families, arranged alphabetically. A surprisingly large amount of information is furnished regarding each family. General characters are given of adult and larval stages, together with remarks on habits and habitat. Reference is frequently made to the most common genera and species in such a way that at least tentative identification may be made. In fact, in a few instances, even keys to the species are included.

Concluding each family discussion are extremely helpful and quite extensive references to additional taxonomic and biologic literature with citations including 1948.

All in all the book should find a wide field of usefulness to anyone interested in Coleoptera, be he beginner or advanced student.

EDWARD J. F. MARX

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Meliponidae—Wanted, information on the bionomics, culture, and economic importance of the stingless bees, particularly of the Old World. P. Nogueira Neto, Av Cicade Jardim 170, S. Paulo, Brasil.

Wasps (Vespoidea, Sphecoidea, Chrysidoidea) of the world by exchange or purchase. Will collect other orders in exchange. D. G. Shappirio, 4811 17th St., N.W., Washington 11, D. C.

Lepidoptera—Large quantities of Plexippus, Colias, Cardui, Vanillae wanted for cash or exchange for tropical butterflies. G. MacBean, 710 Miller Rd., Sea Island, Vancouver, B. C.

Ants of the tribe Dacetini (*Strumigenys, Rhopalothrix* and related genera) wanted for world revision. W. L. Brown, Jr., Harvard University Biological Laboratories, Cambridge 38, Mass.

Mallophaga (on which immediate determination is not necessary) wanted for study and determination. R. L. Edwards, Dept. Biology, Harvard University, Cambridge 38, Mass.

Tingidae (Heteroptera) of the world wanted, in alcohol, with host and other ecological data. Will collect other orders in exchange. N. S. Bailey, 16 Neponset Ave., Hyde Park 36, Mass.

Bombidae, nearctic and neotropical, wanted for exchange, identification, or purchase. Will exchange in other groups for bumblebees. Barth Maina, Dept. Zool., Univ. of Chicago, Chicago 37, Ill.

Saturnidae of the world. Will purchase individual specimens or cocoons. F. E. Rutkowski, St. Bede College, Peru, Illinois, U. S. A.

Butterflies of New England, principally from New Haven, Conn., for exchange. Louis Clarke, 28 W. Elm St., New Haven 15, Conn.

Wanted—Proc. Ent. Soc. Phila., vols. 1–6; Proc. Cal. Acad. (Nat.) Sci., 1–7; Proc. Acad. Nat. Sci. Phila., 1–20; Trans. Amer. Ent. Soc., 1–10; Bull. Buff. Soc. Nat. Sci., 1–5; Psyche, 11, 13, 15; Ent. Amer. n.s., 7–26. C. F. dos Passos, Mendham, N. J.

W. S. Blatchley Books for Sale

Rhyncophora of N. E. America, 1916, 682 pp., Paper $4.00
Orthoptera of N. E. America, 1920, 784 pp., Paper 5.00
Heteroptera of E. N. America, 1926, 1116 pp., Cloth 10.00
Coleoptera of Indiana, when available 50.00

Address Librarian, Blatchley Nature Study Club, Noblesville, Indiana.

Beginning or Completing an Entomological Collection,

Look to WARD'S

In every way possible, *Ward's* is ready to help the entomologist, whether beginning or rounding out a well organized collection. Equipment, specimens and helpful advice await the inquiries of the interested collector.

Write for free special insect and equipment catalogs.

WARD'S Natural Science Establishment, Inc.
Serving the Natural Sciences Since 1862
3000 Ridge Road East • Rochester 9, New York

Important Mosquito Works

MOSQUITO ATLAS. Part I. The Nearctic Anopheles, important malarial vectors of the Americas, and Aedes aegypti and Culex quinquefasciata

MOSQUITO ATLAS. Part II. The more important malaria vectors of the Old World: Europe, Asia, Africa and South Pacific region

By Edward S. Ross and H. Radclyffe Roberts

Price, 60 cents each (U. S. Currency) with order, postpaid within the United States; 65 cents, foreign.

KEYS TO THE ANOPHELINE MOSQUITOES OF THE WORLD

With notes on their Identification, Distribution, Biology and Relation to Malaria. By Paul F. Russell, Lloyd E. Rozeboom and Alan Stone

Mailed on receipt of price, $2.00 U. S. Currency. Foreign Delivery $2.10.

For sale by the American Entomological Society, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

RECENT LITERATURE

FOR SALE BY

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE STREET, PHILADELPHIA, PA.

DIPTERA

1138.—Cresson (E. T., Jr.)—A systematic annotated arrangement of the gen. and spp. of the neotropical Ephydridae. II. The subfam. Notiphilinae (73: 35–61, 1947) ..... $ .90

1142.—A systematic annotated arrangement of the gen. and spp. of the Ethiopian Ephydridae. II. The subfam. Notiphilinae (73: 105–124, 1947) ..... .50

HYMENOPTERA

1137.—Pate (V. S. L.)—The Pemphilidine wasps of the Caribbees (73: 1–33, 1 pl., 1947) ..... .85

COLEOPTERA

1145.—Dillon (L. S. & E. S.)—The tribe Dorcaschematini (Coleoptera: Cerambycidae) (73: 173–298, 6 pls., 1947) 3.45

1139.—Green (J. W.)—New Eastern Amer. sp. of Podabrus (73: 63–76, figs., 1947) ..... .35

1144.—Robinson (M.)—Two new spp. of Scarabaeidae (73: 169–171, 1947) ..... .20

1146.—A review of the genus Phanaeus inhabiting the United States (73: 299–305, 1947) ..... .20

LEPIDOPTERA

1141.—Darlington (E. P.)—Notes on certain types of Lepidoptera described by Brackenridge Clemens (73: 85–104, 1947) ... .50

1140.—Williams (J. L.)—The anatomy of the internal genitalia of Fumea Casta Pallas (73: 77–84, figs., 1947) ..... .20

TRICHOPTERA

1143.—Ross (H. H.)—Descriptions and records of No. Amer. Trichoptera, with synoptic notes (73: 125–168, 7 pls., 1947) .. 1.40

ODONATA

1147.—Needham (J. G.)—Studies on the No. Amer. spp. of the genus Gomphus (Odonata) (73: 307–339, fig., 1 pl., 1947) ..... .85